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Coffey, Vaughan (1999) *Constructing quality : the Hong Kong Housing Department journey*. In: Proceedings of the 4th ICIT Conference : TQM and Innovation, 7–9 April 1999, School of Business, Hong Kong Baptist University, Hong Kong.

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Constructing Quality: The Hong Kong Housing Department Journey

Vaughan Coffey

Senior Manager/PASS Control Unit, Hong Kong Housing Department, Hong Kong.

Fax: +852-2715-5440 Email: wvcoffey@hkg.com

ABSTRACT

This paper explores the 'journey' along the 'never ending quality road' undertaken by the Hong Kong Housing Department over the last 15 years. It briefly covers the early history of public housing in Hong Kong, the catalytic effect brought about by the discovery of the infamous 26 sub-standard blocks in the mid-80s leading to the subsequent major improvements to process control and structural quality in the period 1985 – 1990. It then moves on to a discussion of initiatives taken since 1991, including the formation of the List of Building Contractors and the implementation of the Performance Assessment Scoring System (PASS). The paper ends with a discussion of the current status of quality issues within the Department and touches on future initiatives being developed to further enhance the quality of public housing in Hong Kong.

Keywords: quality control, ISO 9000, TQM and continuous improvement.

1.0 Introduction

1.1 Definition

"Quality is defined by customers. First of all, companies must identify what their customers want. Then they must produce exactly what is wanted, within the agreed time at minimum cost" [Munroe-Faire, 1992].

1.2 Background

The Housing Authority story began over 45 years ago, on Christmas Eve in 1953, when a catastrophic fire left 53,000 people homeless overnight [Leung Mei-yee, 1999]. The Government responded swiftly to the crisis, building 12 resettlement estates, comprising 240 blocks, which re-housed all made homeless by the fire. The resettlement and building programme continued for the next 10 years until the establishment of the Temporary Housing Scheme in 1964.

2.0 The Early Years – 1964 to 1987

2.1 Major Milestones

Below are detailed the significant milestones achieved during the 60s, 70s and 80s -

YR.	INITIATIVE	QUALITY CONTEXT
1985	Mandatory use of Large Panel Form-work	Quality Control/Assurance
1985	Materials Testing Laboratory established	Quality Control/Assurance
1986	Structural Strength Report published	Quality Awareness/Control
1988	Harmony block Series promulgated	Quality Assurance
1990	Housing Authority List of Contractors promulgated	Quality Assurance
1991	PASS promulgated	Quality Assurance
1991	2 Quality Studies completed (internal/external)	Quality Management
1992	All concrete supplied to sites from ISO certified sources	Quality Management/Assurance
1993	HKHA Construction Branch ISO 9000 certified	Quality Management/Assurance
1994	All Building (New Works) contractors ISO 9000 certified	Quality Management/Assurance
1995	All other (i.e. M & E sub-contractors) ISO 9000 certified	Quality Management/Assurance
1997	All HA consultants ISO 9000 certified	Quality Management/Assurance
1998	<p>TQM Initiatives on Quality Public Housing Launched The 'Revolutions'</p> <ul style="list-style-type: none"> ▪ greater senior directorate involvement in 'quality' monitoring; ▪ strategic 'milestone' product/process verification; ▪ creation of a more pro-active performance monitoring system (PASS 2000); and, ▪ enhancement in quality education and training of labour resources. 	TQM
	<p>The 'Reforms'</p> <ul style="list-style-type: none"> ▪ improvement in the quality of site inspection procedures; ▪ strengthened contract management methodologies; ▪ more customer-focused approach to hand-over, defects rectification and all-round after-sales service; and, ▪ greater use of customer (internal/external) feedback to improve specification and design standards. 	

Table 2: . The 'Quality Road' Table

1964	▪ Temporary Housing Scheme was launched
1965	▪ 1 million people were living in government-provided housing
1972	▪ 10-year housing programme was announced to provide housing for 1.5 million people
1973	▪ Housing Authority was established, joining 3 housing organizations into one body
1976	▪ Home Ownership Scheme (HOS) was established to supplement public rental housing ▪ Substantial redevelopment programme of sub-standard blocks was instigated
1979	▪ Private developers were drawn into HOS via the Private Sector Participation Scheme (PSPS)
1980	▪ Authority achieved its 100 th housing estate
1981	▪ Population in rental housing estates reached 2 million.
1983	▪ Hong Kong government steps up its Redevelopment Programme
1986	▪ Extended Redevelopment Programme initiated to clear 11 middle-aged estates
1987	▪ Long Term Housing Strategy initiated to provide a further 390,000 flats

Table 1. Housing Authority Initiatives from 1964 to 1987

2.2 Current Authority Production Output and Housed Population

Following the Long Term Housing Strategy, the Authority is expected to, on average, provide 50,000 of the required 85,000 total units per annum over the next 3 years [Housing Branch, 1997]. In 1997/98, the Authority spent nearly 14 billion dollars on awarding new building contracts. Just under 3.1 million people are now living in the authority's 902,000 flats spread throughout 315 estates [HKHA Annual Report, 1998].

3.0 Quality Control and Quality Assurance

3.1 Structural Strength of Housing Blocks Founded below the Required Standards

In 1986, an investigation identified structural defects on a large number of older domestic blocks. As a result, the Department critically reviewed all rented blocks built before 1985. Buildings were categorized according to concrete condition, 26 blocks were demolished and another 800 were repaired under the maintenance programme.

3.2 Mechanized Large Panel Form-Work

The need for the use of, and advantages to be gained from, more effective mechanized building practices had been evident for some years. 1985 saw the introduction of the mandatory use of 'large panel steel form-work' to replace traditional plywood forms and by 1989, all standard domestic blocks were being constructed by this method.

3.3 *Testing and Improved Quality Assurance*

Effort was also being devoted at this time to improving building materials and in 1985, the Department established its own materials testing laboratory, which was formally recognized in 1989 by the Hong Kong Laboratory Accreditation Scheme (HOKLAS). Specifications were also reviewed and improved over the years. Training was introduced for site staff and contractors were required to employ quality control engineers as well as establishing small testing laboratories on all sites.

3.4 *Standard Block Designs*

In 1988 the Department, embarked upon the design of a new range of standard domestic rental blocks. The result was the Harmony series, which incorporated two breakthroughs, which were to have an important impact on quality and efficiency -

- Firstly, the flat designs were modular and dimensionally coordinated, and,
- Secondly, using standardized components it was possible to better control the quality of elements such as pre-cast facades, doors, kitchen fittings, dry walls, etc. These were then supplied to a set specification, manufactured in quality managed conditions and procured on a programmed basis, rather than by individual contract.

3.5 *Approved List of Building Contractors*

In 1990, the Authority established its own list of building contractors who were dedicated to the Authority's work. This complemented and maximized the philosophy of using standard block designs. Managing its own list enabled more direct control and monitoring of contractors and allowed the operation of reward mechanisms for good performance and penalties for unsatisfactory performers. Listing provided contractors with a reasonable expectation of workload continuity and a foreseeable return on their capital investment.

4.0 *Quality Management Systems*

4.1 *ISO 9000 Certification Requirements*

In 1991, a requirement was promulgated for all new works building contractors to be certified to ISO 9000 [Rules for the Administration of the List, 1990]. By 31st March 1993, some 13 contractors were, and currently 51 new works building contractors are, certified to the standard.

4.2 *The Performance Assessment Scoring System (PASS)*

Since 1991, the performance of the Authority's contractors on new construction works has been measured objectively on a monthly basis by means of PASS. In March 1993, this system was computerized and 'raw' scores obtained from sites now pass via modem to the HKHA Headquarters, where full performance reports are then produced.

PASS focuses on quality achievement, scoring a contractor's performance against predetermined standards and tolerance levels. PASS is not intended to replace the normal checks, inspections and tests to be carried out by the architect or engineer, or to reduce overall authority or powers under the contract. It is seen as a complementary checking system for assurance of the various quality aspects of the construction works.

4.3 *Labour-force Trade Testing*

In 1996, the Authority initiated a requirement for a set percentage of all workers on sites to have a certified full trade apprenticeship qualification, or a trade test certificate from the Construction Industry Training Authority (CITA). This requirement has been incrementally increased and is targeted to reach 50% by the millennium.

5.0 The Road Ahead

5.1 *TQM Initiatives on Quality Public Housing Production*

The current vision of the Housing Authority is to be, "the community's pride as a professional team striving for continuous improvement in the provision of public housing....." [Paper No. BC 96/98, 1998]. 'Brainstorming' sessions amongst members of the Authority's Building Committee and the Department's senior staff were held in the latter part of 1998. Detailed reviews then followed, conducted by focused working groups which subsequently led to a 'quality workshop' involving all of the above mentioned participants groups, together with the 'industry' representatives from contractors and consultants. The key initiatives that emerged were as follows:

- production, and, 'Revolution's will drive strategic changes designed to bring about a new and improved dimension to quality assured public housing
- 'Reforms' will help to consolidate existing quality monitoring and control systems.

The objective of these initiatives is to instigate radical and continuous improvements in the construction and servicing of public housing. Improved quality cannot be achieved in isolation, it involves the Authority, the Department and the all-important contractors and their labour resources, to realize the huge cultural change necessary for success.

6.0 Conclusions

6.1 *The Road Traveled and the Journey Ahead*

The purpose of this paper has been to track the way in which a major public sector organization and Hong Kong's largest housing developer has strategically journeyed along the road of quality. From its humble beginnings, the Authority, ably assisted and serviced by the Department, has risen to and met all of its challenges.

The story doesn't end here, major re-engineering exercises of the Authority and the Department are being undertaken, aimed at bringing about greater efficiency and service quality as Hong Kong moves into the new millennium. An ambitious Management Enhancement Programme (MEP) has been introduced, designed to ensure greater customer focus and satisfaction. Corporatization is being effected, aimed at promoting greater work efficiency within the organization. Privatization of certain design and management functions is planned, to cope with both the increased volume of housing production and to ensure continued value for money service to the public.

The paper ends with a very simple table representing the 'quality road' followed since 1985, annotated with relevant timing of initiatives and encapsulated within the TQM environment now operating and flourishing within the Housing Department

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